

WATERSHED LESSON #7:

Good Tools Are Available

Good tools are essential to the success of the watershed approach. Tools are broadly defined to include geographic information systems, “how to” guides, funding sources, regulations (when appropriate), and monitoring and modeling programs. The sources of funds and technical assistance vary widely, from corporate, government, to nonprofit organizations.

In many watersheds, technical advisors are critical to the effort as watershed residents need a sound, scientifically-based understanding of the resource in order to make good decisions. Some studies suggest that one of the biggest challenges for watershed groups is securing funding. Many states have special funds to support watershed groups, but using creativity in finding other sources is always needed. GIS maps have been very helpful to watershed efforts and have served to educate constituency groups such as town councils and landowners. Fortunately, many tools are available to assist watershed groups.

Project NEMO

Impervious Surface Analysis Can Be Startling

The Nonpoint Education for Municipal Officials (NEMO) Project of University of Connecticut Cooperative Extension is demonstrating the power of using Geographic Information Systems (GIS) to advance watershed protection. And, while NEMO uses GIS and remote sensing (RS) for limited watershed analysis, NEMO Project Director Chester Arnold stresses that the most important -- and most often overlooked -- use of these high-tech tools is for education.

***One aspect of NEMO that really gets people's attention
is the project's analysis of impervious surfaces***

NEMO uses the power of computerized GIS maps to educate busy local land use decision makers on the complexities of the land use/water quality connection. The maps help to graphically and simply illustrate the concept of watersheds, the role of land use in determining water resource health, the relationship between watershed boundaries and political jurisdictions, and the location of key natural resources. Arnold emphasizes that the maps are not complicated, and are combined with local photographs and computer graphics to make them as simple and understandable as possible. The idea is catching on -- adaptations of NEMO are springing up around the country.

One aspect of NEMO that really gets people's attention is the project's analysis of impervious surfaces, which is recognized as a key indicator of watershed health. NEMO

conducts an impervious surface "build-out" analysis, which compares current levels to future levels projected from local zoning regulations. The difference is often startling to local officials, and can help direct changes to land use policies and management that are more protective of water resources. In partnership with The Nature Conservancy, the Environmental Protection Agency, and the U.S. Fish and Wildlife Service, the UConn NEMO team has been working on two pilot watershed projects in the lower Connecticut River valley. These projects use additional GIS data layers, like soils and parcel (property line) information, to lend more in-depth educational and analytical assistance to the watershed communities. For instance, GIS is used to target high priority large woodlot and stream side property owners for educational programs. In addition, maps of priority conservation areas and areas best suited for development are being prepared.

For more information: contact Chester Arnold, (860) 345-4511 (complete listing under Key Contacts and Resources in this lesson)

Save Our Streams, Izaak Walton League Stream Restoration Services for Local Watershed Projects

***Some groups are able to get enough outside funding support
that they can restore a stream with as little as \$500-\$1000 of their own money***

Through workshops, guides and a 1-800 number, Save Our Streams (SOS), operating out of Gaithersburg, MD, provides technical assistance on stream restoration and volunteer monitoring techniques to local watershed groups. Training is designed for all ages. SOS maintains a nationwide computer database of roughly 4,000 projects through which groups can coordinate their efforts with others. A typical hotline call might be a water watch group wanting to know techniques and plant types for restoring grass beds, plants that work well in sandy soils, and techniques for planting on steep slopes where the bank can not be graded. Save Our Streams is able to refer the caller to projects across the nation who have tackled and solved similar issues.

SOS encourages local groups to partner with federal and state agencies and private sector sponsors to bring costs down. Some groups are able to get enough outside funding support that they can restore a stream with as little as \$500-\$1000 of their own money. This partnering can pay off in other ways: in several states, like Virginia and West Virginia, data collected by volunteer monitors has been used in the States' official water quality reports.

The typical SOS workshop lasts 1 to 2 days and covers materials developed by SOS and others. For example, besides using the Global Rivers Environmental Education Network's teacher manual, they also use the SOS wetlands assessment handbook that they developed with the aid of citizen's groups.

Karen Firehock always takes time to learn the watershed's history before she goes into a community to conduct a workshop. By this Karen means not just the events but the culture and the people. This helps her to understand why one group of citizens may oppose another and to construct ways to build trust between them. A one size fits all national approach does not work, as each watershed is unique.

For more information: contact the National Save Our Streams, 301-548-0150, 301-548-0146 (fax), <http://www.iwla.org>, 1-800-BUG-IWLA. Ask for a copy of their excellent summary of stream restoration resources.

Key Contacts and Resources

TECHNICAL ASSISTANCE

- ***Watershed Protection Techniques***, periodic bulletin on urban watershed restoration and protection tools, Center for Watershed Protection, 8737 Colesville Road, Suite L-105, Silver Spring, MD 20910, 301-589-1890, 301-589-8745(fax), <http://www.pipeline.com/~mrrunoff/> Thomas Schueler, Editor-in-Chief and June Beittel, Managing Editor. Many watershed practitioners find this useful as a source of information for best management practices information and case studies. Subscriptions are \$48 or \$28 for students.
- ***Watershed Tools Directory***, EPA 841-B-95-005, compilation by the U.S. EPA of over 200 watershed related tools. Contact: Chris Laabs, U.S. EPA, 401 M Street, S.W. 4503F, Washington, DC 20460, 202-260-7030, www.epa.gov/OWOW/watershed. See also ***Compendium of Tools for Watershed Assessment and TMDL Development***, a review of watershed models and techniques, EPA841-B-97-006, available from 1-800-490-9198.
- ***Watershed Academy***, watershed training for watershed managers and pointer system to other training opportunities. Contact: Doug Norton, 202-260-7017. <http://www.epa.gov/OWOW/watershed/wacademy.htm>, provides training for watershed managers based on local, state, tribal, and federal experiences in implementing the watershed approach throughout the past decade.
- ***National Save Our Streams Resource List***, March 1997, is a very comprehensive list of stream-related conservation resources including short descriptions and contacts for ordering. Broken down into categories for easy use. IWLA, Save Our Streams, 707 Conservation Lane, Gaithersburg, MD, 20878-2983, 301-548-0150, 1-800-BUG-IWLA, savestrm@iwla.org.
- ***Applied River Morphology***, Dave Rosgen, 1996, Pagosa Springs, Colorado. Guide for the classification, assessment, and monitoring for rivers and the applications for water resource management, 970-264-7100, 970-264-7121 (fax).
- ***Ecological Restoration: A Tool to Manage Stream Quality***, U.S. EPA, EPA841-F-95-007, <http://www.epa.gov/OWOW/NPS/Ecology/>, Theresa Tuano, 202-260-7059. Call 1-800-490-9198 to order. Guide explains CWA authorities for restoration of streams, linkages with state water quality standards, and cost-effectiveness of techniques.
- ***Watershed Approach to Urban Runoff: Handbook for Decision Makers***, Terrene Institute, 4-B Hebert Street, Alexandria, VA 22305, 703-548-5473, 703-548-6299 (fax),

www.terrene.org. In addition, the **ENVIROSCAPE** Watershed Model is a powerful 3 dimensional tool that many States have purchased and will loan out to watershed groups who can not afford it themselves.

- **Project NEMO**, Chester Arnold, University of Connecticut Cooperative Extension System, 1066 Saybrook Road, Box 70, Haddam, CT 06438-0070, 860-345-4511, carnold@canr1.cag.uconn.edu, www.lib.uconn.edu/CANR/ces/Nemo/ See Watershed '96 paper: **Training Local Officials in Watershed Management Using User-Friendly Geographic Information Systems**, Lorraine Joubert, Water Resource Specialist, Alyson McCann, Water Quality Coordinator, Dr. Arthur Gold, Professor, PhD, University of Rhode Island, Natural Resources Science, Kingston, RI, www.epa.gov/OWOW/watershed/Proceed/arnold.html
- **Farm-A-Syst** and **Home-A-Syst** - tools to help farmers and landowners determine the pollution potential of their activities and develop action plans to reduce the risk, 550 Babcock Drive B142, Madison, WI, 53706-1293, 608-265-2773, 608-265-2775 (fax), www.wisc.edu/farmasyst. Paper presented at W '96, <http://www.epa.gov/OWOW/watershed/Proceed/jackson.html>
- **The Freshwater Imperative: A Research Agenda**, Island Press, 1995, Island Press, Box 7, Dept., 2NET, Covelo, CA 95428 or call 1-800-828-1302 Fax orders to 707-983-6414. Establishes a research agenda for freshwater with an emphasis on watershed protection centered around three key issues: biological impoverishment, altered hydrological regimes, and risks to human health and quality of life. <http://www.islandpress.com/books/bookdata/FWimp.html>
- **Federal Guidance for the Establishment, Use and Operation of Mitigation Banks**, Federal Register, Vol. 60, No. 228, November 28, 1995, Contact: Thomas Kelsch (EPA), 202-260-8795 http://ceres.ca.gov/wetlands/policies/mitigation_guidance.html

PLANNING AND NETWORKING TOOLS

- **Watershed Partnership Starter Kit**, video and guides that cover the basics for developing and sustaining watershed partnerships, Know Your Watershed, Conservation Technology Information Center, 1220 Potter Drive, Room 170, West Lafayette, IN 47906, 765-494-9555, 765-494-5969 (fax), kyw@ctic.purdue.edu, <http://ctic.purdue.edu/KYW/KYW.html> Also, see the **Calendar of Events** and the **National Watershed Network** on the same web site.
- **Water Environment Federation Technical Chat Area on Watersheds**, Watershed & Wet Weather, Range of Topics: Watershed Quality & Management, Nonpoint Source, Wetlands, Ecology, Water Reuse, Cross-Media Impacts, Biomonitoring, NPDES & Storm water Permitting, Water Quality Criteria & Standards, Modeling & Analytical Tools, Clean Water Act, <http://www.wef.org/wwwboard/watershed/wwwboard.html> Moderated by Greg McNelly, gmcnelly@wef.org
- **Starting Up: A Handbook for New River and Watershed Organizations**, covers the basics including by-laws and how to get grants. Watershed practitioners have found this very useful. Also, **River Voices** newsletter issues on "Say it with Pictures," "Developing Your Message," and "Media Matters" are very popular and useful (see Appendix 3). **The Watershed Innovators Workshop, June 4-5, Proceedings** includes *The Swift River Principles* (see Appendix 1). River Network, Pat Munoz, 4000 Albemarle St., N.W. 303,

Washington, DC 20016, (202) 364-2550, (202) 364-2520 (fax),
<http://www.teleport.com/~rivernet/>, Kathy Luscher, 1-800-423-6747, 503-241-9256 (fax), (rivernet@igc.apc.org), P.O. Box 8787, Portland, OR, 97207-8787.

- ***River CPR: Connecting People With Rivers***, a new national program of training, volunteer service, and public information delivered through existing watershed groups and presented by Rivers Council of Washington, 1731 Westlake Avenue, North #202, Seattle, WA, 98109-3043, (206) 283-4988 and Merrimack River Watershed Council, P.O. Box 1377, Lawrence, MA 01842-2577, (508) 681-5777. Contact: Joy Huber
- ***Greener Thumb***, 30 minute video for homeowners to create environmentally-friendly lawn and landscapes, produced by Rutgers University Cooperative Extension Service, P.O. Box 231, New Brunswick, NJ, 08903-0231, Michael Olohan, 908-932-0640.

DATABASES AND MODELING

- ***The National Water Information System-A Tool for Managing Hydrologic Data***, John C. Briggs U.S. Geological Survey, Reston, VA, Alan M. Lumb, U.S. Geological Survey, Reston, VA, paper delivered at Watershed '96.
<http://www.epa.gov/OWOW/watershed/Proceed/briggs.html>
- ***A Wasteload Allocation Modeling Tool for Watershed Management***, Wu-Seng Lung, Professor, Department of Civil Engineering, University of Virginia, Charlottesville, VA, paper presented at Watershed '96, www.epa.gov/OWOW/watershed/Proceed/lung.html
- ***BASINS***, Geographic Information System application to help states and tribes evaluate existing data sources to identify water bodies that may not be achieving water quality standards. Works within IBM-compatible environment. Contact: Gerry LaVeck, US EPA, 401 M Street, S.W. 4305, Washington, D.C. 20460 202-260-7771, 202-260-9830.
<http://www.epa.gov/OST/BASINS/>
- ***Surf Your Watershed***, US EPA, 401 M Street, 4503F SW, Washington, DC 20460, Karen Klima, 202-260-7087, www.epa.gov/surf. Internet tool for managers and citizens to locate watershed information.
- ***Index of Watershed Indicators Project***, Chuck Spooner, 202-260-1314, EPA's effort, in partnership with many, to describe the condition of watersheds nationally. Available at <http://www.epa.gov/surf/iwiprev.html>
- ***Massachusetts' watershed modeling tool***, Andrew Gottlieb, MA DEP, 11 Winter St, Boston, MA 02108, 617-292-5653, 617-292-5696 (fax).
- ***Watershed Planning System: A Tool for Integrated Management of Land Use and Non-Point Source Pollution*** Deborah Weller, Joseph F. Tassone, Dawn M. DiStefano, and Nevitt S. Edwards, Maryland Office of Planning (OP), paper presented at Watershed '96 <http://www.epa.gov/OWOW/watershed/Proceed/weller.html>

FINANCIAL

- ***Watershed Protection: Catalog of Federal Programs***, US EPA, EPA-841-B-93-002, March 1993, Contact: Joan Warren, 202-260-7796. Describes federal programs that provide funding or technical assistance for watershed projects. 107 pages.
- ***EPA Environmental Financing Web Page***, <http://www.epa.gov/efinpage/efptools.htm>
This page includes guidebooks on traditional and alternative financing tools. Note: EPA grants information web page is located at <http://www.epa.gov/ogd/grants.htm> Includes information on EPA's wetlands grants, nonpoint source grants, and National Estuary

grants. Also, visit the page on tools to finance community-based environmental protection at <http://www.epa.gov/efinpage/guidebk/sec8.htm> The Clean Water State Revolving Fund Program has been made more flexible to allow states to focus on their highest-priority issues, 202-260-7359, <http://www.epa.gov/efinpage/srfcon.htm>.

- ***Financing Marine and Estuarine Programs: A Guide to Resources***, September 1988, EPA503/8-88/001, Contact: Joe Hall, 202-260-9082. Order from 1-800-490-9198.